

इंटरनेट

मानक

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Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

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“पुराने को छोड़ नये के तरफ”

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“Step Out From the Old to the New”

IS 11539 (1986): Method of vertical load test for glass containers [CHD 10: Glassware]



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“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

METHOD OF VERTICAL LOAD TEST FOR GLASS CONTAINERS

1. Scope — Specifies method for determination of resistance of glass containers to external force in the direction of the axis. The pass tests are intended especially for containers the resistance of which is specified.

2. Sampling

2.1 The test shall be performed on a predetermined number of containers.

2.2 The containers used for the test shall not have been subjected to any other mechanical or thermal test which could affect their resistance to vertical load.

3. Apparatus — The apparatus shall consist of the following.

3.1 Press, or other suitable equipment, with the following characteristics.

3.1.1 The apparatus shall be capable of developing the necessary force and indicating this force by means of a pointer or recording device to an accuracy of at least 2.5 percent.

3.1.2 The apparatus shall consist of two horizontal flat steel pressure plates. The upper plate shall be self-aligning and the lower one shall be provided with centering marks on its surface.

3.1.3 The apparatus shall be equipped with a protective cover, or each type of test container shall be provided with a sufficiently firm cylindrical cover suitable for its height which is slightly lower than the height of the test sample.

3.2 Pads consisting of cardboard or several sheets of paper, to prevent glass-to-metal contact under load.

4. Procedure

4.1 The temperature of the sample shall not differ by more than 5° C from the ambient.

4.2 Cushion the container using pad (see 3.2).

4.3 Place closures on the test containers, if this is specified for the test.

4.4 The lower plate of the press (see 3.1) shall be clean, especially of glass particles. Position the base pad (see 3.2), with the test container placed on it, in the centre of the lower plate. The centre line of the container shall be in line with that of the apparatus.

4.5 Secure the container using the protective cover and, at the same time, place the corresponding closure on the sealing surface of the container finish. The test container shall be covered with a pad similar to the pad situated under it unless a closure is used.

Note 1 — The use of the corresponding closures is suitable, especially when metal closures with a sealing layer are used. In these cases, screw and bayonet closures shall be locked manually.

Note 2 — Where either paper or a closure is used, new upper and lower pads shall always be used for testing each container.

4.6 The approach speed or the average rate of increase in the force should be constant and shall be reported.

4.7 The following procedures are carried out according to the type and the purpose of the test.

4.7.1 Pass Test — Increase the force applied to the specified valve. When the specified value is achieved, the plates shall be withdrawn. After testing a predetermined number of the container, the test is complete.

4.7.2 Total Progressive Test — Increase the force applied progressively until the container breaks. The test shall be applied to all containers in the test series.

Adopted 2 January 1986

© June 1986, ISI

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5. Test Report — The test report shall include the following:

- a) Reference to this standard;
- b) Description and the capacity of the apparatus, and the test conditions according to 4.4;
- c) Description and the number of containers in the sample tested and the sampling method;
- d) Mention of the upper and lower pads applied or closure, if used;
- e) The approach speed or the average rate of increase in the force; and
- f) Results according to the type and the purpose of the test:
 - 1) For the pass test, in accordance with 4.7.1:
 - i) the force achieved (loading), and
 - ii) the number of containers which failed the test.
 - 2) For the total progressive test, in accordance with 4.7.2:
 - i) force, expressed in kilonewtons, needed to break each container;
 - ii) mean value of these values, \bar{x} ; and
 - iii) standard deviation, s .

E X P L A N A T O R Y N O T E

Glass bottles normally carried in crates or cartons are subjected to axial compressive forces during stacking and transportation. The bottles also experience pressure at the time of capping and it has been found that the bottles sometimes break, in case they are not properly shaped. If a bottle is not properly shaped then some parts of the bottle surface are severely stretched which leads to breakage due to tension anywhere reaches the limiting value. In order that the breakage of bottle, does not occur during capping in service due to non-axial loading, the test has been devised. No specific values have been specified in the standard and the same will be specified in the product specification.

The standard is based on ISO 8113-1985 'Glass containers — Resistance to vertical load — Test method', issued by International Organization for Standardization (ISO).